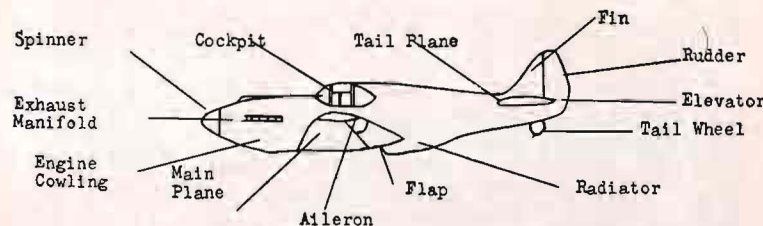


If you are a beginner who knows nothing whatever about the art of recognizing aeroplanes, you must face the fact that you may require, at one time or another, to recognize any one of several hundred different types. As a rough sort of guide, various countries have adopted national emblems which are prominently displayed on all service aeroplanes. The unfortunate feature of this is that by the time the aeroplane is close enough to see the national markings, the need for identifying the aeroplane will probably have passed. Furthermore, national markings are easily altered and so no great faith should be placed in them. The individual features that are visible up to 1,000 yards, are the points that count.

A vocabulary of aeronautical terms is necessary to this study. No detailed knowledge is required, but the student should be familiar with the following:



DEFINITIONS

The sliding roof, windows or transparent covering of the cockpit is referred to in these notes as the GLASS-HOUSE.

Airscrews may be either:—

- (i) Tractor ("pulling" the aircraft through the air), or
- (ii) Propeller ("pushing" the aircraft).

Tail plane, fin, rudder and elevator, together make up the TAIL UNIT, or Empennage.

The distance from wing-tip to wing-tip is called the SPAN.

Landing wheels, oleo legs, etc., which are usually retractable, are known as the UNDERCARRIAGE, or more familiarly as the "Undercart".

The front edge of main or tail plane is called the LEADING EDGE, and the rear edge is called the TRAILING EDGE.

The main structure of the body of the aircraft, to which the main plane, tail unit and other surfaces are attached, is known as the FUSELAGE.

In two or multi-seater aircraft the glass dome or bulge used by the Air Gunner is called the TURRET.

Other terms are self-explanatory.

The diagrams below show the various types of main plane in use on modern aircraft.

High wing monoplane.



Low wing monoplane.



Mid wing monoplane.



Dihedral.



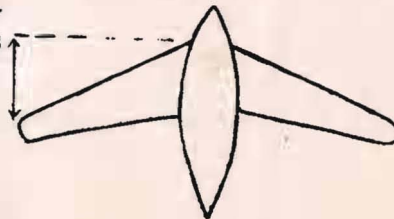
Anhedral (or negative dihedral).



Gull wing monoplane.
There are now no aircraft
with this construction in
Operational Service.



Inverted gull wing. Usually the word "inverted" is omitted.



Sweepback

Having mastered the definitions, the student is prepared to proceed to the study of various types of aircraft. Thirty different types of British, allied and German, have been selected as a representative group. Some of these may not be first-line ships but they have been chosen because (a) of their wide usage, resulting in news stories and photographs, and (b) some of them may be seen flying in this country. Training aircraft have purposely been omitted, because they are either very familiar to the student, or else never seen in flight or photo; in either case nothing is gained by showing them here.

To become expert at aircraft identification, the actual aeroplanes should be studied in flight, so that such details as flying attitude and sound may be studied along with views from all directions. Models are satisfactory substitute, because only the sound cannot be reproduced. Silhouettes are extremely useful in the initial stages presenting three views which may be studied carefully and reproduced by drawing.

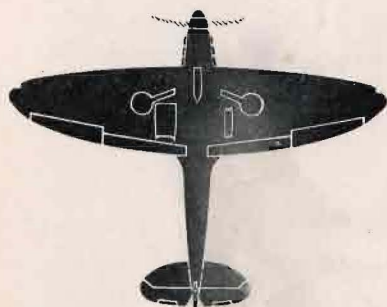
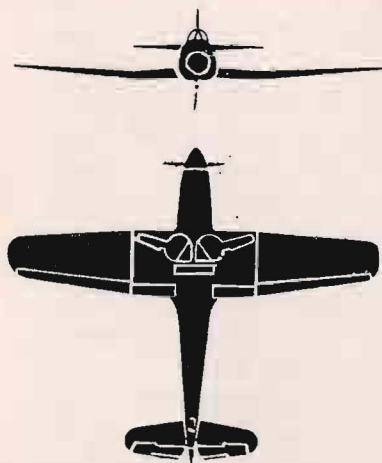
A brief description is included with each of the following silhouettes pointing out the salient identification features in order to assist the individual to form clear-cut mental pictures. This should be followed by a study of the aeroplanes in flight, models, or photographs in order to consolidate the knowledge. Nothing but practice, and more practice, will bring speedy and efficient identification.

Further References

"*Aircraft Recognition*", by Saville-Sneath.

Air Pamphlets 1480 A and B.

Articles in "*Canadian Air Cadet*".



1—HE 113
(German)

2—SPITFIRE
(British)

3—ME 109E
(German)

1—HEINKEL 113 (German).

An ugly little, single seat fighter designed to replace the Me 109E. Appears to droop at the nose in the side view owing to straight bottom line to fuselage. High rectangular fin and rudder are also evident. The inverted gull wing shows up head-on. The plan view is much similar to the Hurricane, recognition points being a slimmer fuselage, narrower wing section and tail plane with equal taper to leading and trailing edges from the straight centre section.

2—SPITFIRE (British).

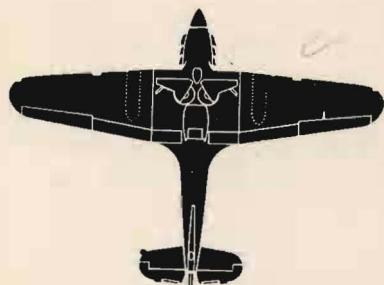
The thoroughbred of the air, graceful in all views, probably the fastest single engine aircraft in the world today. Egg-shaped fin and rudder and straight line to top edge of fuselage in front of cockpit are evident from the side. Smooth elliptical shaped wings are unique in the plan while the head on view shows slim wing section with average dihedral and radiator located under star-board (right) wing.

3—MESSERSCHMITT 109E (German)

Still Germany's standard single-engined fighter, the Me 109E presents a smooth appearance. The cockpit is located very low in the fuselage which leads straight back to a lumpy fin and rudder. The struts to the tail plane may be seen in the side view and are a giveaway when seen head on. The tail plane is mounted high. Straight equal tapered leading and trailing edges run to square cut wing tips in the plan. The 109F is similar except for rounded tips, unbraced tail and huge spinner.



4—HURRICANE
(British)



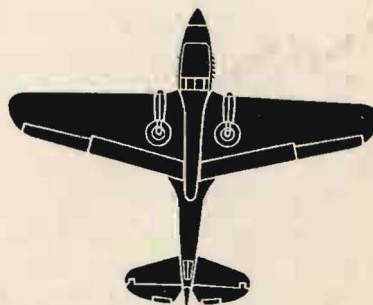
5—JUNKERS 87B
(German)



4



5



6

4—HURRICANE (British)

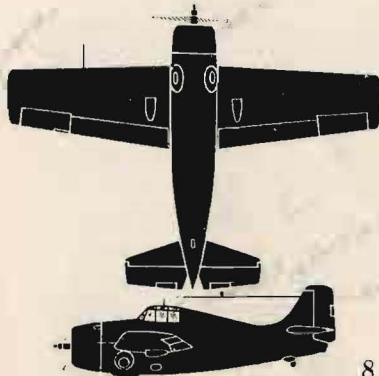
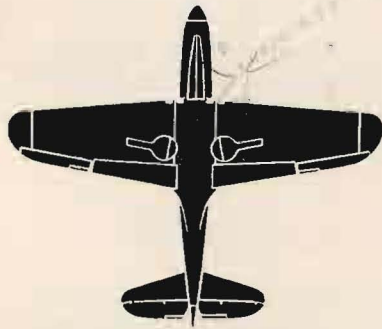
Jack of all trades, the sturdy Hurricane can carry bombs, mount four cannon or twelve machine guns to be the heaviest armed single engine fighter. It is slower than the Spitfire but succeeds in more manoeuvre-ability. It looks hump-backed from the side and gives a heavy appearance in the plan and head views owing to broad, thick wings. The radiator mounted centrally under the fuselage gives a deceptive mid-wing appearance from the front.

5—JUNKERS 87B (German)

Commonly known as the Stuka, this single-engined two-seater is the original operational dive-bomber. Its strange ungainly appearance makes it easily recognized, a few points being inverted gull wings, fixed heavily spatted undercarriage, high glasshouse, angular fin and rudder and strutted rectangular tail plane. This craft is slow and ungainly and also poorly armed making it easy meat for our fighter craft and anti-aircraft fire.

6—TOMAHAWK (British and U.S.A.)

Known in the U. S. air forces as P-40, this fighter is doing fine work in China and the middle east. The sharply pointed spinner and large radiator just behind give it a shark-like appearance which has been accentuated in many squadrons by painting a mouth and teeth around it. Most difficult view is from the bottom where the trailing edge tapers to meet the straight leading edge at rounded tips. The P-40E or Kittihawk is an improved version recognized chiefly by a larger radiator and smoother lines.



9

7—AIRACOBRA
(British and U.S.A.)

8—MARTLET
(British and U.S.A.)

9—BUFFALO
(British and U.S.A.)

7—AIRACOBRA (British and U.S.A.)

This single-seat fighter is labelled P-39 in the U.S.A. and represents several new departures in designing including tricycle landing gear and engine mounted behind the cockpit. This latter gives the craft a "stuck-up" appearance, the sharp nose being definitely turned up. The raised cockpit with all-glass fairing is noted from side and front. Seen in plan the pointed nose is evident and coupled with smoothly tapered wings with rounded tips ensures recognition.

8—MARTLET (British and U.S.A.)

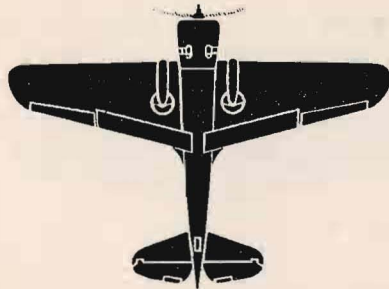
Designed and built by Grumman as a fighter for the Navy, it is the F4F in the United States. Radial engine gives it a square cut nose and the cylindrical fuselage makes it appear like a barrel with wings. Everything about this ship is square-cut, i.e., nose, wing tips, tail plane, fin and rudder and cockpit glasshouse. This distinguishes it from the Buffalo which it closely resembles.

9—BUFFALO (British and U.S.A.)

The Brewster fighter known to the trade as the "portly peanut". A mid-wing monoplane with radial engine the fat fuselage tapers to a point, giving the curved fin and rudder a tacked-on appearance from the side. The low-mounted tail plane and more dihedral to the wings distinguish it from the Martlet when viewed head on. Both the Buffalo and Martlet feature Grumman-type retractable undercarriage.



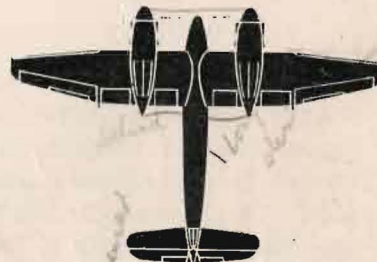
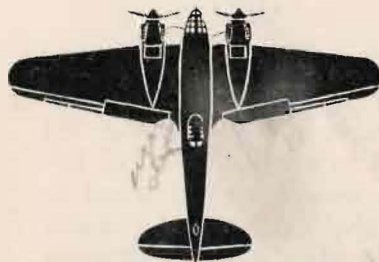
10—MOHAWK
(British and U.S.A.)



11—HE 111K MKV
(German)



12—WHIRLWIND
(British)



10—MOHAWK (British and U.S.A.)

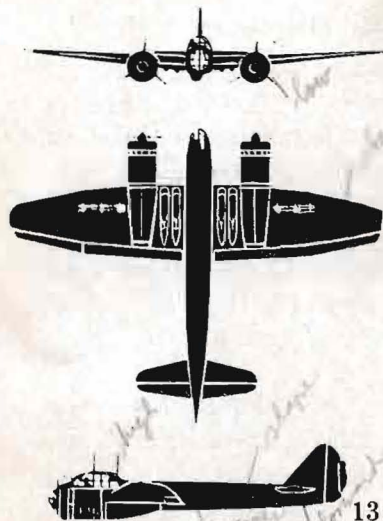
Forerunner of the Tomahawk and Kittihawk the P-36 as the Mohawk is designated, was the standard single-seat U.S. fighter for many years. It is used as advanced trainer by the Norwegian Air Force in this country. The sturdy lines of the fuselage in the side view terminate in a large round fin and rudder. Low set wings with slight dihedral distinguish it from other radial engine types seen head on while the wings with straight leading edge and swept forward trailing edge and the "wing-nut" tailplane show up in plan.

11—HEINKEL 111K MKV (German)

One of the original designs of heavy bomber, it has had a long and varied career up to the present modified type. The perfect cigar-shaped fuselage with perspex nose will distinguish this twin-engine bomber from any view. Symmetrical curved lines of the fin and rudder appear like half of the tail plane. Free gun positions are evident from the side. The typical Heinkel bite from the trailing edge of the wing is seen in plan.

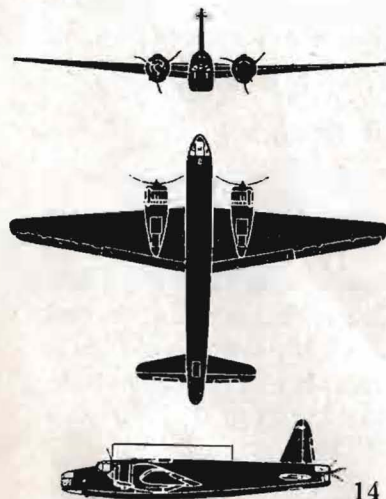
12—WHIRLWIND (British)

On the secret list for many months, this twin-engine single-seat fighter is chiefly used for low level work. The radical design permits easy recognition for there is no mistaking the long slender fuselage with teardrop cockpit cover, baggy engine nacelles which extend beyond the front of the fuselage and the high fin and rudder with tail plane mounted near the top. The slender lines of the fuselage and the big engines give this ship away in the plan view which is most difficult.



13

13—JU-88
(German)



14

14—WELLINGTON
(British)

15—BEAUFIGHTER
(British)

13—JUNKERS 88 (German)

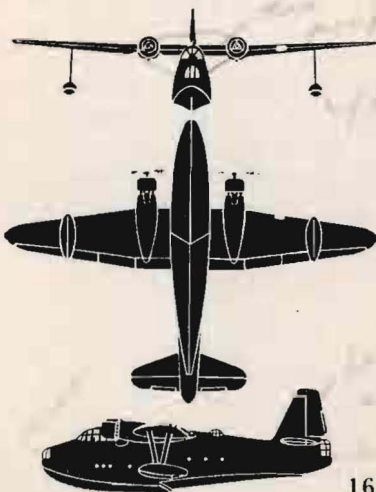
A versatile aircraft built by Junkers used chiefly in the dive bombing capacity. Its hammer head fuselage with huge radial-like engine nacelles makes it resemble an old fashioned potato masher from the side. Be careful not to confuse the fin and rudder with the Bristol design as seen in Blenheim, Beaufort, Beaufighter, etc. Head on the cylindrical underslung engines and offset gunners bay are evident. The ragged lines to the wings and the protruding engines show in plan.

14—WELLINGTON (British)

This old-timer turned out by Vickers has been giving grand service for many years. It presents a solid appearance from the side, a tall triangular-shaped fin and rudder being set on the straight top line of the fuselage. The bottom line is a gentle curve from turret to turret. Mid-mounted radial engines set close to the fuselage and the tall fin show up from a front view while the sharply-tapered wing and straight lines of fuselage identify this ship from the bottom.

15—BEAUFIGHTER (British)

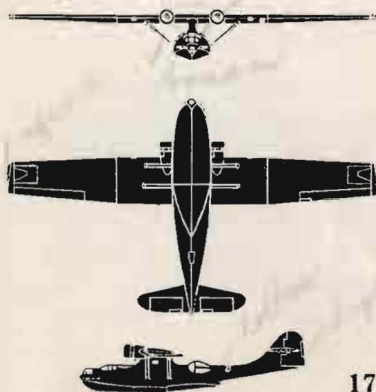
A comparative newcomer to the service the Beaufighter multi-seat fighter takes its place along side the other successful members of the Bristol family. The smooth lines of the fuselage terminate in the typical Bristol fin and rudder at one end and abruptly at the nose as if to give room for the two propellers. Heavy, protruding engines and a tear-drop astra-dome aid recognition from the side. Mid mounted engines and blacked out nose to the square fuselage permit recognition from head on.



16—LERWICK
(British)

17—CATALINA
(British and U.S.A.)

18—MARYLAND
(British and U.S.A.)



16—LERWICK (British)

Designed and built by Saunders Roe this twin-engined flying boat gives valiant service in the coastal command, if less publicized than the four-engined Sunderland which it resembles. High wing, deep hull, the bottom line of the fuselage is broken by a single step. The high angular fin and rudder is set forward permitting a tail turret. From head on the hull is rather triangular in shape, widening at the bottom, with wing floats near the wing tips.

17—CATALINA (British and U.S.A.)

A flying boat manufactured as the PBV in the United States this ship has terrific range and enjoys much success in reconnaissance work. The side view presents a shallow hull curving up to a rounded fin and rudder. The single wing with twin engines is mounted high on a heavy stanchion located just behind the pilots cabin. Seen head on the hull is a V bottomed arc and no dihedral shows in the mainplane.

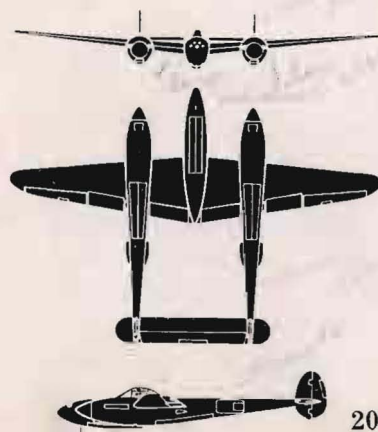
18—MARYLAND (British and U.S.A.)

Martin builds this twin-engined bomber as the 167 for the U.S. as well as Britain and it has shown up well in the Middle East. Looking like a coal scoop from the side, it may only be confused with a sister-ship the Baltimore which is slightly deeper. Head on, the oval fuselage showing plenty of transparency, low wing with little dihedral carrying mid-mounted radial engines and the high tail plane identify it. Seen in plan the aircraft has sleek, smooth lines.



19

19—ME 110
(German)



20

20—LIGHTNING
(British and U.S.A.)

21—WHITLEY
(British)

19—MESSERSCHMITT 110 (German)

Germany's standard multi-seat aircraft the Me 110 has proved itself a most dangerous opponent with heavy armament and excellent performance. Seen from the sides the fuselage tapers from a long low glasshouse mounted directly over the wing to twin fins and rudders of symmetrical design. In plan it presents a slender fuselage unbroken by any transparent windows, terminating in rectangular tail-plane, and sharply-tapered wings with rounded tips. Head on it has a wicked, business-like appearance which is unmistakeable.

20—LIGHTNING (British and U.S.A.)

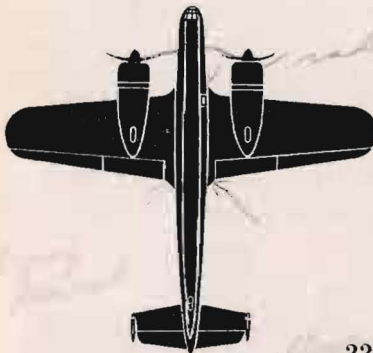
Turned out by Lockheed in the U.S.A. as the P-38, the Lightning has not seen sufficient action to establish its true worth. It is easy to identify with a streamlined cabin mounted in a smoothly-tapered wing between two inline engines which are carried in twin booms. From the side these fuselages are straight along the top with the bottom line curving gently to twin fins and rudders. Head on the wing has a large dihedral and a perfect oval fuselage shows up between the engines.

21—WHITLEY (British)

Another old-timer, tried and true, is the clumsy-looking Whitley bomber. Like a faithful old hound sniffing his way around, this ship flies in a distinctive nose down attitude. Seen from the side the straight lines of the fuselage show a distinctive turret and bomb-aimers panel at the nose while at the tail a turret peeps out from behind ungainly fins and rudders mounted on top of the tail plane. Head on the mid wing is unbelievably thick with dihedral at the tips while the plan view is anything but beautiful.



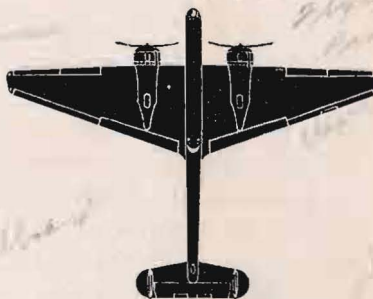
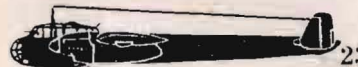
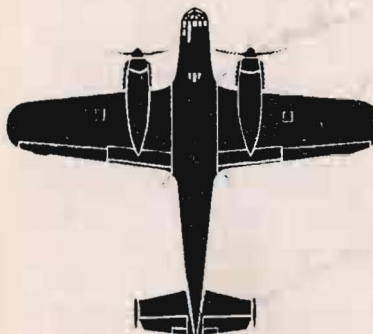
22—DO 17
(German)



23—DO 215
(German)



24—HAMPDEN
(British)



22—DORNIER 17 (German)

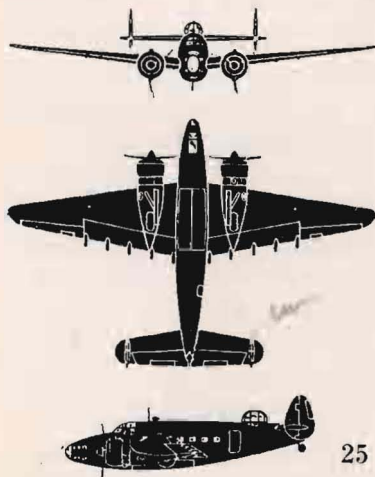
In contrast to the Whitley but doing a similar job for the enemy, is the Dornier 17 called the "Flying Pencil". The long slender fuselage, with shoulder wing set well back, protruding just beyond the characteristic Dornier fin and rudder identify this aeroplane from the side. From the front the fuselage looks hexagonal with huge radial engines slung on each side in the shoulder wing. Looking up at it the broad wings with slight taper and rounded tips, the tapered tail-plane and the heavy nacelles are features.

23—DORNIER 215 (German)

A development of the DO 17 is the 215, which has an improved performance and heavier bomb load. A raised glasshouse and underslung gunners' bay gives the shorter nose a lumpy appearance and increases the crew accommodation. Inline engines with radiators situated underneath give a changed appearance in all views although the two aircraft are similar in other respects.

24—HAMPDEN (British)

The deep-sided fuselage which narrows suddenly to a virtual boom on which the twin tail unit is mounted earns for this aircraft the name "Flying Panhandle". Cramped crew accommodation has made it rather unpopular and it is becoming obsolete. From below the slender fuselage and broad wing root which sweeps forward sharply to meet the straight leading edge present a dainty appearance. Head on the narrow but deep fuselage, thin mid-wing and mid-mounted radial engines identify. The Hereford is identical with the exception of inline engines.



25



27

25—HUDSON
(British and U.S.A.)



26

26—JU 90
(German)

27—LIBERATOR
(British and U.S.A.)

25—HUDSON (British and U.S.A.)

Lockheed converted this from a civilian type and it has done great service on our shores as well as overseas. A fat, sleek, twin-engined aircraft the top line of the fuselage from the pilot's cabin is straight while the bottom line presents a gentle curve to large egg-shaped fins and rudders. A bulbous turret is located near the tail. Seen from below the wings taper considerably to pointed tips while the fuselage is gently streamlined. One interesting feature is the tracks for Fowler flaps on the trailing edge of the wing.

26—JUNKERS 90 (German)

Probably the largest of all German operational aircraft is the Junkers four-engined JU 90 communication and troop transport. The side view shows a deep cabin with several windows which starts from a hooked nose and extends considerably beyond a curved fin and rudder. In plan the wing and engine mounting is unique. The leading edge of the wing sweeps sharply back while the travelling edge starts to sweep back gently then suddenly straightens. The engines are staggered. The square fuselage low wing and high mounted tail-plane show up in the head on view.

27—LIBERATOR (British and U.S.A.)

This aeroplane known as B-24 in the U.S.A. is in wide use in Britain and has established several records for Atlantic crossings. Extremely fast, with great range, it has a huge fuselage and a wing that appears like a toothpick in comparison. Thick fuselage with wing mounted shoulder high and large almost circular fin and rudder show up from the side. Head on the extremely wide slim wings with average dihedral show up. In plan it is again the long slender wings.



28—FORTRESS I
(British and U.S.A.)



29—KURIER
(German)

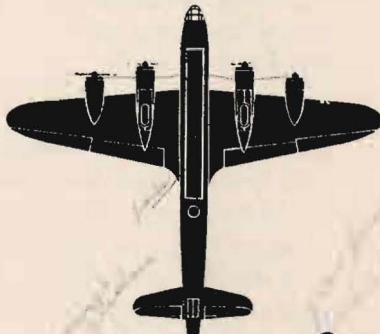


28

30—STIRLING
(British)



29



30

28—FORTRESS I (British and U.S.A.)

This highly publicized aeroplane is manufactured by Boeing for the U.S. air corps as the B-17, and has been used with much success against the Japanese, although little has been heard of its activities in Europe. Chief recognition feature is the cigar-shaped fuselage with glass nose and distinctive fin and rudder mounted on the top. Seen head on the thick wing has average dihedral and tailplane is not visible. Gun blisters on the sides and bottom will aid recognition. The Fortress II is similar with the tail fin starting well forward on the fuselage in the form of a rib and turrets in the tail and top.

29—KURIER (German)

Four-engined, long range bomber manufactured by Focke-Wulf. Aeroplanes of this type are used to raid convoys far out at sea. The fuselage is cigar-shaped with a bath-like protrusion on the under side to house gun positions and provide bomb storage. An almost square fin and rudder is mounted to the sharply pointed fuselage. Head on the thin low wing has considerable dihedral from the outer engines and the protrusion is offset to the right of the fuselage. From underneath the appearance is similar to the JU 90 on a smaller scale.

30—STIRLING (British)

Carrying capacity of this aeroplane exceeds that of any other service type. Built for performance rather than appearance the long fuselage looks like a stick from the side with the tall fin and rudder sticking out like a broken branch. The pilot sits in a streamlined glass-house near the nose. Power operated gun turrets are seen at both ends. Head on the fuselage and tail fin look like a dinner bell. The inboard engines are underslung and the outer mid mounted on the slender wing. This peculiar engine mounting can also be seen in the bottom view.